ALLOTOONIA, A NEW NEOTROPICAL GENUS OF APOCYNACEAE BASED ON A SUBGENERIC SEGREGATE OF *ECHITES*

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ABSTRACT

Allotoonia (Apocynaceae) a new neotropical genus segregated from *Echites* is described. In addition, a key to species, descriptions, distribution maps, illustrations and specimens examined are provided for all species.

Key Words. Apocynaceae, Apocynoideae, *Allotoonia*, Echiteae, *Echites*, Neotropics, Mesoamerica, Mexico

RESUMEN

Allotoonia (Apocynaceae), un nuevo género neotropical segregado de *Echites* es descrito. Se brinda una clave para todos los taxa, así como descripciones, mapas de distribución, ilustraciones y especímenes examinados para todas las especies.

In his monumental revision of *Echites* P. Browne, Woodson (1936) established two subgenera: *Echites* (*Euechites*) and subg. *Pseudechites* Woodson. Subgenus *Pseudechites* included the species *E. turbinata* Woodson and *E. tuxtlensis* Standl. and was distinguished from subgenus *Echites* by its smaller corollas (1.25–2.5 cm long vs. 5–8 cm long), lobes narrowly oblong and reflexed (vs. obliquely obovate and spreading), and its many flowered lax inflorescence (vs. compact and few flowered). A third species, *E. parviflora* Sessé & Moç. was subsequently added to subg. *Pseudechites* by Woodson (1938).

Echites went relatively unnoticed for close to 60 years, until Morales (1997) provided a synopsis of the genus. In his work, Morales described an additional species in subg. *Pseudechites* (*E. puntarenensis* J. F. Morales) as well as presented an argument for maintaining *Prestonia agglutinata* (Jacq.) Woodson in *Echites*, resurrecting the older name *Echites agglutinata*.

The morphological cladistic analysis of *Echites* s.l. and other genera of subfamily Apocynoideae presented in Williams (2004) indicates that *Echites* sensu Woodson is polyphyletic. Subgenus *Pseudechites* shows a stronger affinity to other genera of Echiteae sensu Endress and Bruyns (2000) (e.g., *Laubertia*, *Prestonia*, *Thenardia*) than it does to subg. *Echites*. Consequently, the authors have chosen to recognize the species in subg. *Pseudechites* as a distinct genus (*Allotoonia* described below) separate from *Echites* s.s. Table 1 documents the

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differences between *Allotoonia*, *Echites*, and other selected genera of New World Echiteae.

MORPHOLOGICAL CHARACTERS

Leaves.—The leaves are opposite and entire. Four of the five species have leaves with obscure secondary venation making them readily discernible from *Echites*. One species, however, *A. agglutinata*, has conspicuous secondary veins. *Allotoonia* also shares with others neotropical Apocynoideae, intra-petiolar colleters. All species have glabrous leaves. The leaves of *A. turbinata* are often two to three times longer and broader than those of the other four species. Field studies have shown that these characters are uniform and consistent within a population.

Inflorescence.—*Allotoonia* is readily distinguished from *Echites* by the inflorescence structure. The inflorescence of *Allotoonia* is a helicoid cyme once, twice to occasionally thrice branched, while in *Echites* the inflorescence is a modified dichasium, sometimes appearing racemose, and occasionally reduced to just one flower. The bracts are always inconspicuous and scarious.

Flowers.—The calyx is regular, pentamerous, and with a solitary opposite colleter on the adaxial surface of each sepal, as found in many others members of the Echiteae (e.g., *Prestonia*, *Thenardia*). The sepals are narrowly ovate and 1–3.5 mm long. The shape and dimensions of the sepals for each species corresponds to the shape and dimensions of the bracts subtending the pedicel.

The corolla is salverform, the tube glabrous without. The aestivation is dextrorse as are all other neotropical members of the Apocynoideae. The corolla lobes are very narrowly elliptic to almost filiform, acuminate to long-acuminate at the apex and conspicuously wavy and twisted distally. *Allotoonia* is the only neotropical Apocynaceae genus with wavy and twisted filiform lobes at the anthesis (Figs. 1–2). In *Echites*, the corolla lobes are obovate.

The stamens are included and the anthers are strongly attached at two levels to the spool shaped style head (Fig. 3). The anther shape differs between *Allotoonia* and *Echites* (Fig. 4). In *Allotoonia* an anther is more or less continuous (except for a slight dorsal protuberance), without a marginal rib. In *Echites* the anther has a conspicuous marginal rib that is extended from the basal projections along the entire length up to the apex (Fig. 1 B).

Fruit.—The fruits of *Allotoonia* are composed of two herbaceous, pendulous, follicles (Fig. 5) developing from two carpels postgenitally united at the apex, sometimes free at maturity. The follicles are continuous to obscurely moniliform. The fruits of *Echites* are woody and never moniliform.

Seeds.—The seeds of *Allotoonia* are glabrous, 6–20 per follicle, and rostrate, with the beak slender, narrowly and conspicuously elongate (Fig. 6), while in *Echites* the seeds are inconspicuous to moderately rostrate, with the beak short (sometimes somewhat elongate in *E. yucatanensis*) and gradually acuminate toward the micropylar end (Fig. 7).

Allotoonia J.F. Morales & J.K. Williams, gen. nov. TYPE. *Allotoonia agglutinata* (Jacq.) J.F. Morales & J.K. Williams

Herba volubilis, Forsteronieae, Laubertiae, Parsoniae, Prestonieae, Thenardiae et Thoreauiae affinis; folia opposita petiolata, membranacea, eglandulifera; inflorescentia lateralis pedunculata multiflora; corolla regularis 5-partita, hypocrateriforma, lobis filiformis, revolutis, tubo exappendiculata stamina inserta, glabra; fructus folliculis, seminibus rostrata.

Lactescent lianas, usually herbaceous, more rarely suffruticose, not woody. Stems terete to subterete, somewhat flattened at the nodes, glabrous, not lenticellate, with inconspicuous intrapetiolar colleters, the latex usually watery. Leaves opposite, entire, membranaceous, glabrous or glabrate, the secondary and tertiary veins usually inconspicuous or obscure, petiole with many, minute and filiform colleters in the axils. Inflorescence a helicoid cyme, axillary, glabrous, many-flowered, usually long-pedunculate, bracts scarious, inconspicuous. Flowers pentamerous, the sepals free or very slightly imbricate basally, scarious, bearing a solitary, episepalous entire to variously laciniate colleter within; corolla salverform, glabrous to very minutely and inconspicuously puberulent without, without corona lobes or annular corona, the tube usually longitudinally grooved, with an infrastaminal ribs present below each filament, the limb 5-parted, actinomorphic, dextrorsely convolute, the lobes very narrowly elliptic to almost filiform, acuminate, twisted and wavy distally; stamens 5, included, inserted in the upper part of the corolla tube near the mouth, anthers connivent and agglutinated to the style head, attached in two points to the style head, glabrous to glabrate, thecae with the base sagittate, 2-auriculate, auricles short, but conspicuous, short-acuminate, filaments short, puberulent to pilose, carpels 2, united at the apex by a common stylar shaft surmounted by the fusiform, spool-shaped style head, ovary glabrous, ovules numerous, multi-seriate, nectarines five, separated and distinct, rarely slightly connate basally. Follicles continuous and terete to subterete, or obscurely moniliform, slender and smooth, usually glabrous; seeds comose at the micropilar end, conspicuously rostrate, minutely rugose, numerous.

This genus comprises five species distributed from southern Mexico to northern Panama, and the West Indies. *Allotoonia* is named after Dr. Anthony Leeuwenberg, from the Wageningen University (WAG), The Netherlands, in recognition of his work in the Apocynaceae.

The genus *Allotoonia* is in the subfamily Apocynoideae, tribe *Echiteae* (Endress & Bruyns 2000), as evidenced by the following characters: anthers with the thecae connivent, agglutinated and strongly attached at two levels to the spool shaped style head.

TABLE 1. Morphological characters in *Allotoonia* and selected genera of the *Echiteae*

Genera	**Allotoonia**	**Echites**	**Forsteronia**	**Laubertia**	**Prestonia**	**Thenardia**	**Thoreauea**
Morphological Characters							
Latex	Clear	White	White	Clear	White	Clear	White
Secondary veins	Usually inconspicuous	Conspicuous	Conspicuous, rarely inconspicuous	Conspicuous	Conspicuous	Usually inconspicuous	Conspicuous
Inflorescence	Helicoid cyme	Modified dichasium	Thyrsiform	Scorpioid cyme, sometimes reduced and appearing simple or umbelliform subcorymbose	Racemose, subracemose, umbellate, subumbellate, corymbose or	Subumbellate cyme	Trichotomously branched Subumbellate cyme
Bracts	Scarious	Scarious	Scarious	Scarious	Foliaceous to scarious	Scarious	Scarious
Sepals	Scarious	Scarious	Scarious	Scarious	Foliaceous to scarious	Scarious	Scarious
Sepals colleters	Solitary and opposite	Solitary and opposite	Laterally or evenly disposed, rarely lacking	Lacking	Solitary and opposite	Solitary and opposite	Solitary and opposite
Corolla	Salverform	Infundibuliform	Salverform to rotate		Salverform	Salverform to rarely infundibuliform	Rotate Urceolate to campanulate
Corona	Absent	Absent	Absent	Present, continuous around the corolla mouth	Present, continuous around the corolla mouth	Absent	Present, dissected interior to corolla mouth

Genera	Allotoonia	Echites	Forsteronia	Laubertia	Prestonia	Thenardia	Thoreauea
Morphological Characters							
Lobes	Very narrowly elliptic to almost filiform, acuminate, twisted and wavy distally	Obovate	Oblong to lanceolate	Obovate	Obovate to ovate	Ovate	Ovate
Stamens insertion	included, inserted in the upper part, near the mouth	Included, inserted about midway the corolla tube	Included or variously exserted	Included or variously exserted	Included or apically exserted	Exserted	Apically exserted
Filaments	Free	Free	Free or connate	Free	Free or connate	Partially	Partially connate
Disk or nectaries	5, usually separated, rarely slightly connate basally	5, but usually connate basally	Usually (3–) 5-lobed basally	5, separated to irregularly connate in 5 nectaries	Annular, entire to 5-lobed or divided	5, separated	5, separated
Follicles	Slender, continuous and terete, or obscurely moniliform	Slender, continuous and terete	Slender, divaricate or, parallel, continuous to moniliform	Slender, moniliform, rarely continuous	Divaricate, fusiform, continuous or rarely moniliform	Slender, moniliform	Unknown
Coma seeds	Conspicuously rostrate	Inconspicuously to moderately rostrate	Truncate, sessile	Truncate, sessile	Truncate	Sessile	Unknown

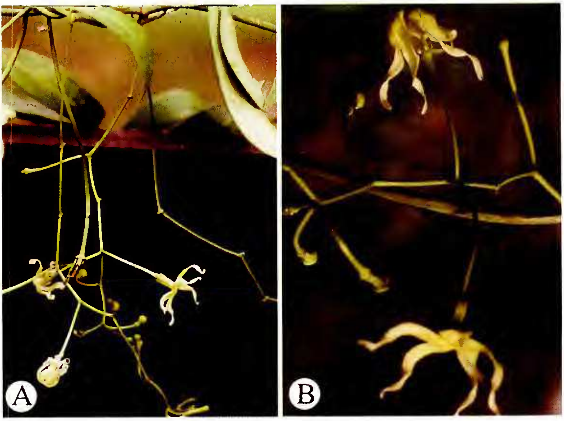

Fig. 1. *Allotoonia caudata*. **A.** Habit and inflorescences (*Morales 8242*, INB). **B.** Close-up of the flowers, showing twisted and elongate corolla lobes (*Morales 8242*, INB).

KEY TO THE SPECIES OF *ALLOTOONIA*

1. Corolla lobes (17–)20–27 mm long; corolla tube constricted below the insertion of the stamens; montane rain forest and related disturbed areas between 1500–2350 m ____ **A. turbinata**

1. Corolla lobes 4–14(–16) mm long; corolla tube straight or slightly constricted below the insertion of the stamens; tropical deciduous forest, premontane moist forest, gallery forest, and related disturbed areas, bewteen 0–1200(–1400) m.
   2. Secondary venation of leaves raised and conspicuous, tertiary venation of leaves obscure; corolla lobes glabrous; plants of the West Indies ____ **A. agglutinata**
   2. Secondary venation inconspicuous, not raised, tertiary venation usually inconspicuous; corolla lobes pubescent or glabrous; plants of Mexico and Central America.
      3. Corolla lobes shorter than tube, glabrous; bud pointed; tube 7–9 mm long, ca. 1 mm diam., constricted between middle to base of lobes ____ **A. tuxtlensis**
      3. Corolla lobes longer than tube, hirsute or glabrous; bud round, tube 4–6(–7) mm long, ca. 2 mm diam., straight, not constricted.
         4. Corolla orange to yellow-orange, the lobes hirsute; pedicels 2–9 mm; anthers 3.5–4 mm ____ **A. parviflora**
         4. Corolla white, creamish white to pinkish white, the lobes glabrous to glabrate; pedicels 11–24 mm; anthers (5–)6–8 mm ____ **A. caudata**

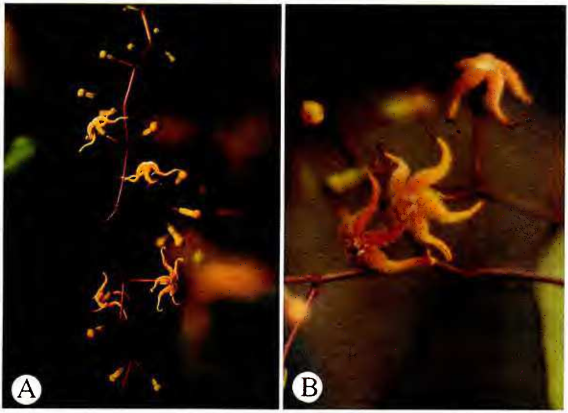

Fig. 2. *Allotoonia parviflora.* **A.** Habit and inflorescences (*Morales & Abarca 8810*, INB). **B.** Close-up of the flowers, showing twisted and elongate corolla lobes (*Morales & Abarca 8810*, INB).

1. Allotoonia agglutinata (Jacq.) J.F. Morales & J.K. Williams, comb. nov. (**Figs. 8, 9**). Basionym: *Echites agglutinata* Jacq., Enum. Syst. Pl. 13. 1760. *Anechites agglutinata* (Jacq.) Miers, Apocyn. S. Amer. 236. 1878. *Prestonia agglutinata* (Jacq.) Woodson, Ann. Missouri Bot. Gard. 18:552. 1931. Type. HAITI: Cap. Francais, Select Stirp. Am. Hist. 1763. (lectotype, here designated).

Echites circinalis Sw., Prodr. 52. 1788. *Haemadictyon circinalis* (Sw.) G. Don, Gen. Hist. 4:83. 1837. *Anechites circinalis* (Sw.) Miers, Apocyn. S. Amer. 236. 1878. Type: data lacking (fl), *Rohr 93* (lectotype, here designated: C, isolectotype: P-LA).

Echites sanguinolenta Tussac, Fl. Antill. 95, t. 11. *Haemadictyon nutans* (Anders.) A. DC. var. *sanguinolenta* (Tussac) A. DC., Prodr. 8:426. 1844. Type. HISPANIOLA: not located.

Echites circinalis Sw. var. *thomasiana* A. DC., Prodr. 466. 1844. *Anechites thomasiana* (A. DC.) Miers, Apocyn. S. Amer. 237. 1878. Type: ST. THOMAS: exact locality lacking, 1841 (fl), *Friedrichsthal 240* (holotype: W).

Echites obtusifolia Sessé & Moc., Naturaleza (Mexico City), ser. 2, 2, app. 45. 1893. Type: PUERTO RICO: near Castellum del Morro, Oct., year lacking, *Sessé & Mocino 5075* (lectotype, here designated: MA).

Suffruticose to herbaceous liana, stem terete to subterete, glabrous to glabrate. Leaves: petioles 5–20 mm long, with minute pectinate colleters in the axils or sometimes eglandular, glabrous; blade 3–13.5 × 2–8.5 cm, membranaceous, el-

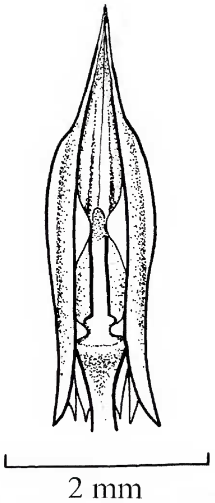

Fig. 3. *Allotoonia parviflora* style head and anthers, showing the two levels of attachment to the spool shaped style head. (*Morales & Abarca 8810*, INB).

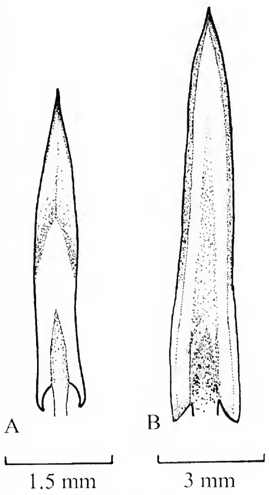

Fig. 4. *Allotoonia* and *Echites* anthers, dorsal view. **A.** *Allotoonia parviflora*. (*Morales 3139*, INB). **B.** *Echites umbellata*. (*Whiteford 8209*, INB).

liptic, narrowly elliptic to narrowly ovate, apex caudate to obtuse, base obtuse to somewhat attenuate basally, glabrous, midvein impressed on both surfaces, the secondary venation conspicuous on both sides. Inflorescence usually longer than the subtending leaves, lax, peduncle 1.5–7 cm, pedicels 2–5 mm, bracts 1–2 mm long, ovate, acute, scarious; sepals 1–1.5 × 0.5–1 mm, ovate, acuminate, glabrous, glabrate, or minutely and inconspicuously puberulent, colleter somewhat laciniate to deeply so; corolla salverform, white, creamish white to cream, glabrous without, tube 5–6 mm long, 1–1.5 mm diam, somewhat inflated at the attachment of the stamens, pubescent within near the mouth, lobes 4–6 × 1–2 mm, glabrous; stamens: filaments ca. 4 mm, glabrate to sparsely pubescent, anthers 4–5 mm, glabrous, auricles ca. 0.2 mm, ovary ca. 2 mm, glabrous, style head 1.5–2 mm long, nectaries 1–1.5 mm, entire and conspicuously separate. Follicles 11–31(–46) × 0.4–0.8 cm, continuous, smooth and glabrous, usually straight; seeds 6.5–10 × 1.5–2 mm, rugose, the tannish coma 2–4 cm.

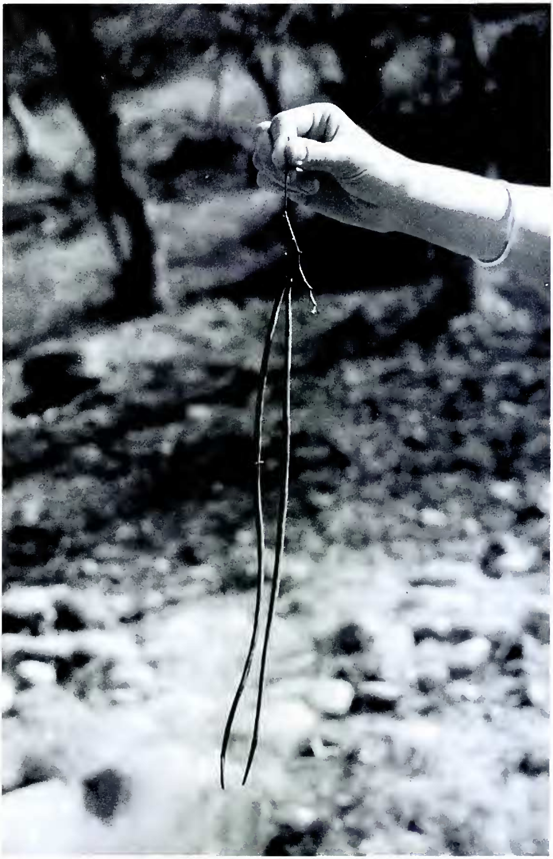

Fig. 5. *Allotoonia parviflora*. Follicles

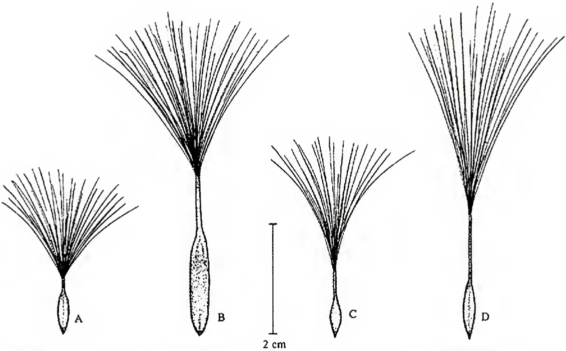

Fig. 6. *Allotoonia* seeds. **A.** *A. agglutinata* (*Axelrod & Axelrod 3091*, INB). **B.** *A. turbinata* (*Gómez-L. et al., 14142*, INB). **C.** *A. tuxtlensis* (*Arvigo et al. 536*, INB). **D.** *A. parviflora* (*Morales 3161*, INB).

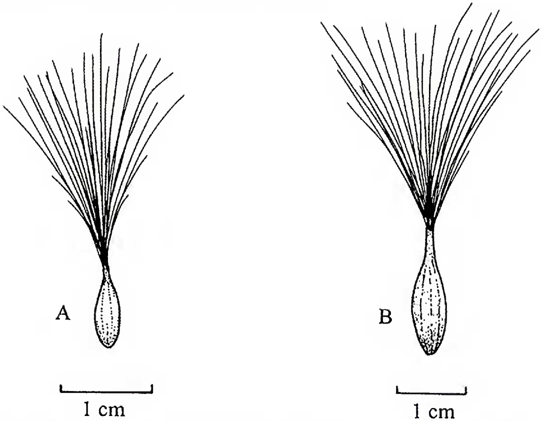

Fig. 7. *Echites* seeds. **A.** *E. umbellata* (*Trejo et al. 530*, INB). **B.** *E. yucatanensis* (*Magallanes 3137*, INB).

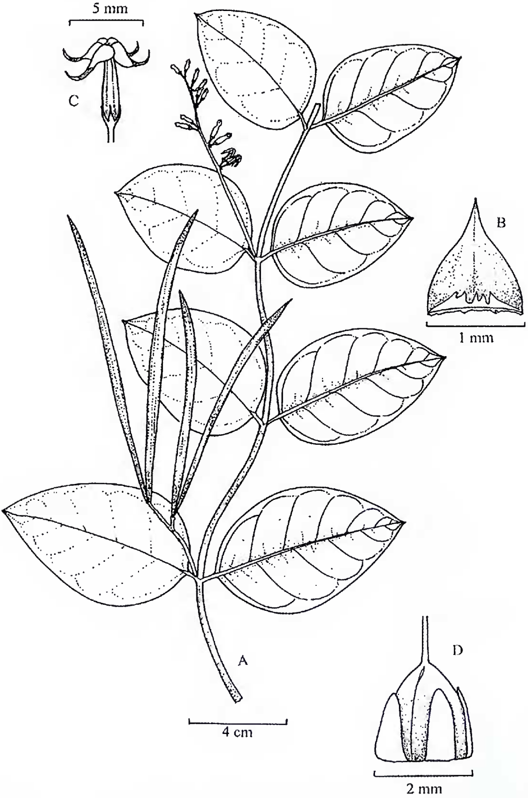

FIG. 8. *Allotoonia agglutinata* **A.** Fertile shoot, showing the inflorescence and fruits. **B.** Sepal and colleter. C. Corolla. D. Disk and ovary (*Zanoni et al. 47051*, INB).

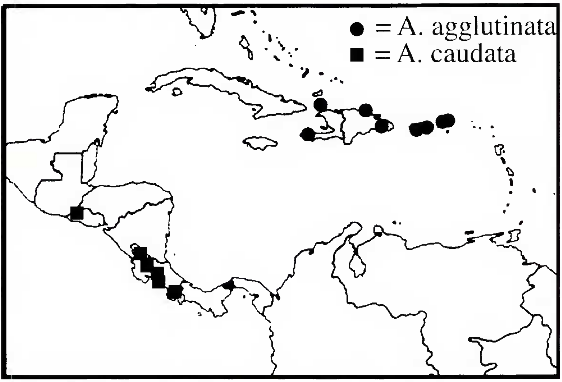

FIG. 9. Distribution of *A. agglutinata* and *A. caudata*.

Habitat and distribution.—Dry forest, gallery forest, shrubby vegetation, thickets, and disturbed areas in the West Indies (Hispaniola, Cuba, Puerto Rico, Jamaica, part of Greater Antilles), at elevations of 0–350 m. (Fig. 9). Associated species include *Abutilon* and *Plumeria*.

Phenology.—Flowering specimens have been collected in January, May–June and September–October. Fruiting collections have been made in January–February and September–October.

Local names.—abrazapalo (Dominican Republic); azufaifo, babeiro (Puerto Rico).

Allotoonia agglutinata is the only species of the genus with conspicuously raised secondary veins. In addition, it has glabrous corolla lobes that are longer than the tube and it is distributed throughout the West Indies. The corolla bud is contorted, similar to the bud of *A. tuxtlensis* (Fig. 10).

A complete list of synonyms for this species as presented by Woodson (1936) is provided here in order to indicate that an earlier generic name does not exist for any of the described species of *Allotoonia*. Although the types collection of *Echites sanguinolenta* Tussac and *E. circinalis* Sw. var. *thomasiana* A. DC. were not located, they are included in the synonymy based on their original descriptions, which matches the *Allotoonia agglutinata* concept used here. Within *Allotoonia*, *A. agglutinata* has the highest number of synonyms, and is the only

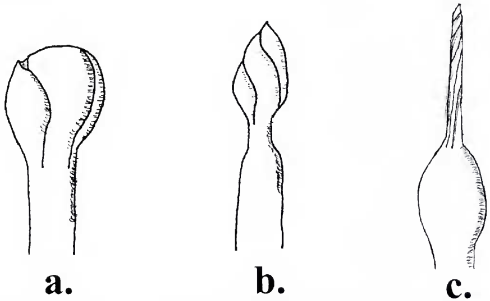

Fig. 10. Flower buds of the species of *Allotoonia*. A. ***A. parviflora*** **(*Williams 96-88*, SHST). B.** ***A. turbinata*** **(*Breedlove 25058*, TEX). C.** ***A. tuxtlensis*** **(*Hernández 488*, TEX).**

species that has been described in multiple genera. None of the genera listed above are legitimate alternatives to *Allotoonia*.

Observations of the Sessé & Mocino collections by the second author indicates that the specimen number *5075* is labeled *Echites obtusifolia*. The species name is written on the back of the herbarium sheet, which perhaps accounts for the specimen being overlooked. Consequently, specimen number *5075* of the Sessé and Mocino herbarium is here designated as the lectotype for *Echites obtusifolia*.

Selected specimens examined. **JAMAICA:** Data lacking: *Swartz 265* (BM). **PUERTO RICO:** Patillas, Guardarraya, Cerro Mala Pascua, 13 Oct 1991, *Axelrod & Axelrod 3091* (INB, UPRRP); Isla de Desecho, W of Puerto de los Botes, *Breckon 4994* (MAPR), *Breckon 5019* (MAPR); Sabana Grande, Susúa forest, 7 Nov 1990, *García & Caminero 3287* (MAPR. NY); Salinas, Camp Santiago, section Lima, date lacking, *Ross & Meletische 253* (MO); near Cayey, Pedro Avila, 22 Sep 1895, *Sintenis 2457* (S); Quebradillas, 24 Jun 1991, *Taylor & Gereau 10493* (MO); Guanica, 25 Jan 1886, *Urban 3565* (BM, P [2 sheets]); Punta Tuna, S of Yabacoa, 11 Oct 1968, *Wagner 1690* (INB). **DOMINICAN REPUBLIC:** Cabo Francés Viejo to Cabrera, 28 Sep 1969, *Liogier 16152* (INB, NY); La Romana. Río Cumayasa, road San Pedro de Macorí-La Romana, 29 Oct 1992, *Zanoni et al. 47051* (INB, JBSD). **HAITI:** La Hotte, Bras Gauche river, 8 Nov 1924, *Ekman 2431* (S); Totue Island, Basse-Terre, 28 Oct 1925, *Ekman 5131* (S, US). **TORTOLA:** Belmont Beach, 30 Oct 1965, *D'Arcy 292*^{a} (MO). **VIRGIN ISLANDS:** Francis Bay area, 6 Jun 1985, *Acevedo* et al. *902* (BM, NY); Coral Bay Quarter, road to Bordeaux, 7 Jan 1991, *Acevedo & Siaca 3819* (INB, US); Reef Bay, Dittlif point, 20 Jan 1991, *Acevedo & Siaca 3974* (MO).

2. Allotoonia caudata (Woodson) J.F. Morales, comb. nov. (**Figs. 1, 11**). Basionym: *Echites puntarenensis* J.F. Morales, Brittonia 49:332. 1997. nom. nov. *Prestonia caudata* Woodson, Ann. Missouri Bot. Gard. 47:79. 1960, non Blanco (1837). Type:

COSTA RICA: Puntarenas: vicinity of Cascajal, 25 km ESE of Puntarenas, 3 Jul 1949 (fl), *Holm & Iltis 243* (HOLOTYPE: MO; ISOTYPES: A, CR, G, GH, P).

Suffruticose lianas, stem terete to subterete, glabrous. Leaves: petioles 6–19 mm long, with minute pectinate colleters in the axils, glabrous; blade 6–14(–16) × 1.5–5 cm, membranaceous, elliptic to narrowly elliptic, more rarely narrowly obovate-elliptic, apex acuminate, base obtuse to cuneate, glabrous, midvein impressed on both surfaces, the secondary venation scarcely impressed or inconspicuous on both sides, veinlets usually inconspicuous. Inflorescence longer than the subtending leaves, lax, peduncle 4.5–11 cm, pedicels 11–24 mm, bracts ca. 1 mm long, ovate, acuminate, scarious; sepals 1 × 0.5–1 mm, ovate, acute, glabrous, the colleter entire to subentire; corolla salverform, white, creamish white, or pinkish white, glabrous without, tube 6–8 mm long, 2–2.5 mm diam, straight, glabrate around the stamens within, lobes 8–15 × 1.5–2 mm, glabrous to glabrate; stamens: filaments less than 0.5 mm, inconspicuous, anthers (5–)6–8 mm, glabrous, auricles ca. 0.8 mm; ovary 1.5–2 mm, glabrous, style head 1–2.5 mm long; nectaries 0.5–1 mm, entire. Follicles unknown.

Distribution.—Dry forest, savannas, and disturbed areas in northern Costa Rica, southern Nicaragua and El Salvador, 0–600(–1000) m. (Fig. 9). Associated species include *Curatella*, *Lonchocarpus*, *Plumeria*, and *Stemmadenia*.

Phenology.—Flowering specimens have been collected in February, April, June–July, September, and November–December.

Local names.—bejuco de Veneno (Costa Rica, Guanacaste, Nicoya).

Allotoonia caudata is very similar to *A. parviflora* and usually misidentified in herbarium specimens. However, the former taxon is easily distinguished by its white, creamish white, or pinkish white flowers (vs. orange to yellow-orange), with glabrous or glabrate corolla lobes (vs. densely hirsute). Morales (1997) recognized that *Prestonia caudata* Woodson should be treated in *Echites* but a new name was necessary, because the epithet was already occupied by several homonyms (*E. caudata* L., *E. caudata* Burman f., and *E. caudata* Blanco), thus, the name *E. puntarenensis* was proposed. With the transfer of this taxon to the new genus, the original basionym can be used according to article 58.3 of The Code. Therefore, the respective combination is made and *E. puntarenensis* is reduced to synonymy.

Specimens examined. **EL SALVADOR. Santa Ana:** Coatepeque, 3 Sep 1994, *Villacorta & Méndez 2181* (B, LAGU, MO). **NICARAGUA. Chontales:** 3 km N of St. Tomás, 6 Apr 1982, *Moreno 16081* (MO). **Rivas:** Isla Omotepe, Balgue, 28 Nov 1982, *Moreno 18888* (MO); Isla Ometepe, Balgue, 18 Jan 1983, *Moreno 19664* (BM, MO); Isla de Ometepe, 15 Sep 1983, *Moreno 22179* (MO); Isla Omotepe, Mérida, 11 Feb 1984, *Robleto 199* (MO); Isla Omotepe, Volcán Maderas, 18 Jun 1984, *Robleto 912* (MO), 16 Jan 1985, *Robleto 1701* (MO). **COSTA RICA. Guanacaste:** Pilas de Bejuco, 18 Nov 1994, *Estrada & Rodríguez 283* (CR, INB, MO); Cañas, Río Corobicí, 26 Jun 1942, *León 894* (F); Nicoya, 25 Jan 1985, *Poveda & Castro 3926* (CR, MO); scrub near Nicoya, May 1900, *Tonduz 13940* (MO). **Puntarenas:** Paquera a Playa Organos, 25 Dec 1993, *Hammel & Garita 19306* (CR, INB, MO). **San José:** San Juan de Mata, cabeceras Quebradas Yeguas y Paso Agres, 11 Nov 2001, *Morales 8242* (INB, MO).

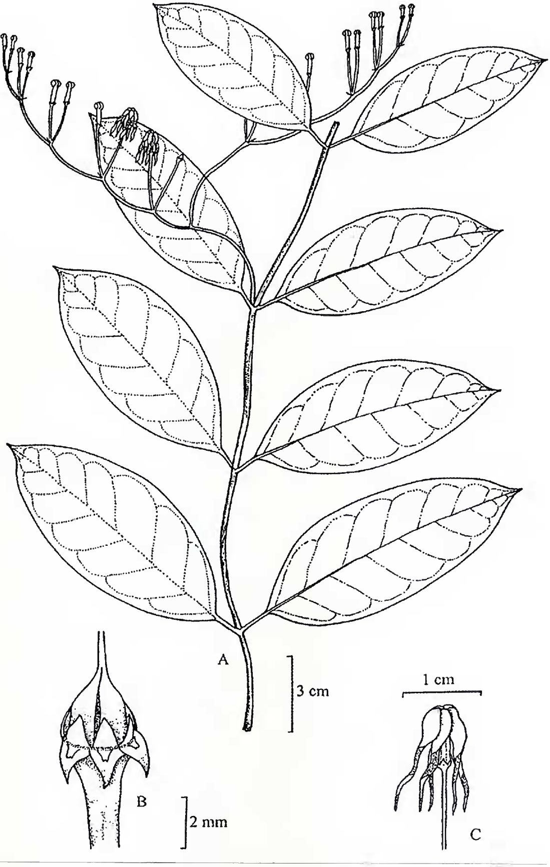

FIG. 11. *Allotoonia caudata* **A.** Flowering shoot. **B.** Sepals, colleters, nectaries, and ovary. **C.** Corolla (*Morales 8242*, INB).

3. Allotoonia parviflora (Sessé & Moc.) J.F. Morales & J.K. Williams, comb. nov. **(Figs. 2, 12, 13)** BASIONYM: *Echites parviflora* Sessé & Moç., Naturaleza (Mexico City), ser. 2, 1, app. 28. 1888, non Roxb (1832). TYPE: MEXICO. MICHOACÁN: Apatzingan, date lacking (fl), *Sessé & Moçiño 5068* (LECTOTYPE: fide Williams 2002, MA; ISOLECTOTYPE: F; photo F neg. 41238, INB ex MA).

Echites woodsoniana Monac., Bull. Torrey Bot. Club. 86:245–247, f. 1. 1959. *Prestonia woodsoniana* (Monac.) A.H. Gentry, Ann. Missouri Bot. Gard. 70:205. 1983. TYPE: MEXICO. MICHOACÁN: Apatzingan, 13 Oct 1939 (fl), *Hinton 15325* (HOLOTYPE: NY; ISOTYPES: GH, MO, NY, TEX, US [2 sheets]).

Suffruticose liana, stem subterete, glabrous. Leaves: petioles 3–15 mm long, with minute pectinate colleters in the axils, glabrous; blade 3.2–9.2(–11.4) × 0.9–3.6 cm, membranaceous to somewhat subchartaceous, elliptic, narrowly elliptic to narrowly ovate, apex acuminate, acute to acute-mucronate, base obtuse to cuneate, glabrous, midvein impressed on both surfaces, the secondary venation scarcely impressed or inconspicuous. Inflorescence longer than the subtending leaves, lax, peduncle 1.3–7 cm, pedicels 2–9 mm, bracts 1–1.5 mm long, almost linear, acuminate, scarious; sepals 1–1.5 × 0.5–1 mm, ovate to narrowly ovate, acute to acuminate, glabrous to glabrate, more rarely minutely and inconspicuously papillate, the colleter very slightly erose; corolla salverform, orange to yellow-orange, glabrous without, tube 3.5–6 mm long, ca. 1.5 mm diam, straight, puberulent within around the stamens, lobes 8–14(–16) × 1.5–2 mm, densely hirsute adaxially; stamens: filaments less than 0.5 mm, inconspicuous, anthers 3.5–4 mm, glabrous, auricles ca. 0.8 mm, ovary 1.5–2 mm, glabrous, style head 2–3 mm long, nectaries 0.5–1.5 mm, distinct to somewhat connate, entire. Follicles 30–40 × 0.4–0.5 cm, continuous to obscurely moniliform, smooth and glabrous, somewhat twisted distally; seeds 21–27 × 1–1.5 mm, rugose, the creamish coma 3.8–4.2 cm.

Distribution.—Dry forest, premontane moist forest, disturbed areas, savannas, semideciduos forest, rocky forested outcrops, and gallery forest in Mexico, Guatemala, Honduras, Nicaragua, and Costa Rica, at elevations of 0–1100(–1400) m. (Fig. 13). Associated species include *Anacardium*, *Astronium*, *Bursera*, *Enterolobium*, *Lonchocarpus*, *Ficus*, and *Plumeria*.

Phenology.—Flowering January, April–May, and July–December. Fruitng collections have been collected in January-April and November

Local names.—Bejuco de Sapo (Mexico, Guerrero, Zirándaro).

This species has a complicated taxonomic history having been treated repeatedly in *Prestonia*. The history of this species is well documented in Williams (2004).

Allotoonia parviflora is immediately distinguished by its rounded corolla bud (Fig. 10) and pubescent corolla lobes (Fig. 2 B). It is often confused with *A. tuxtlensis*, which has a pointed corolla bud (Fig. 10) and glabrous corolla lobes. Also, *Allotoonia parviflora* consistently has corolla lobes longer than the tube, while the corolla lobes in *A. tuxtlensis* are consistently shorter than the tube.

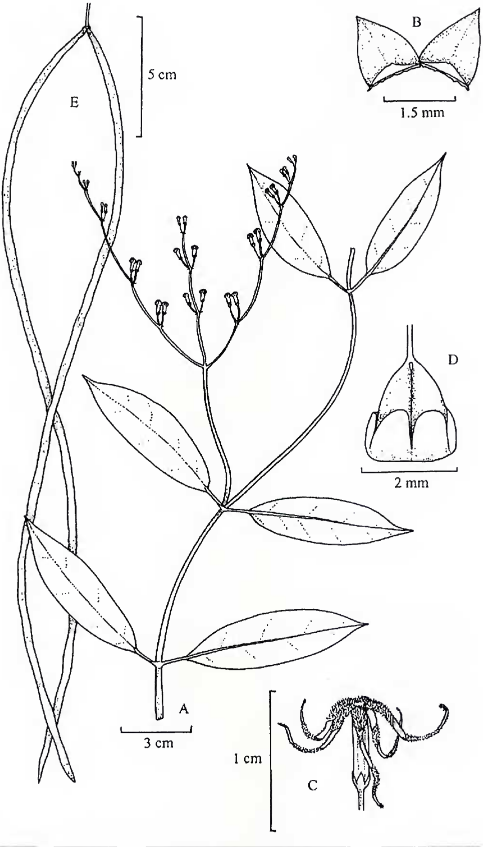

Fig. 12. *Allotoonia parviflora* (A–D from *Morales & Quirós 8241*, INB; E from *Morales 3139*, INB). **A.** Flowering shoot. **B.** Sepals and colleters. **C.** Corolla. **D.** Nectaries and ovary. **E.** Fruits.

The holotype of *E. woodsoniana* (=*Allotoonia parviflora*) at NY has corolla lobes 15–16 mm long, making it appear to be a specimen of *A. turbinata*. *Allotoonia turbinata* differs from *A. parviflora* by its flowering bud, which has the corolla lobes extended upwards rather than folded in (Fig. 10).

Although *Echites parviflora* Sessé & Moç. is a later homonym of *E. parviflora* Roxb., its use in the new combination *Allotoonia parviflora* (Sessé & Moç.) J.F. Morales & J.K. Williams is legitimate according to article 58.3 of The Code.

Monachino (1959) recognized that *Echites parviflora* Sessé & Moç. is a homonym of *E. parviflora* Roxb., and thus regarded its use by Woodson (1936) as illegitimate. Unfortunately, Monachino did not have access to the type of *E. parviflora* Sesse & Moç. and was therefore uncertain as to its true identity. Rather than proposing a new name for the species he decided to re-describe it as a new species, giving it the name *E. woodsoniana* Monach., as was exposed previously by Gentry (1983). Observations of the lectotype of *E. parviflora* at MA by the second author confirm that the specimen is conspecific with *E. woodsoniana*. *Echites woodsoniana* is here treated as a synonym of the new combination *Allotoonia parviflora*.

Specimens examined. **MEXICO. Guerrero:** Tario, Coyuca, 5 Apr 1935, *Hinton et al. 7589* (P, US); Tario, Coyuca, 4 Feb 1934, *Hinton 5863* (US); El Talamo, road Zirándaro-Guayamo, 6 Sep 1982, *Soto & Silva 4355* (INB, MEXU). **Jalisco:** Jilotlán de Los Dolores, Río Tepalcatepec, 21 Sep 1983, *Martínez et al. 4369* (INB, MEXU). **Michoacán:** 4 km e of Apatzingán along river, 3 Jan 1997, *Williams 96-88* (SHST, TEX); Arteaga, road to Playa Azul, 11 Nov 1977, *Koch et al. 77462* (US); Arteaga, road Arteaga to Nueva Italia, 27 Sep 1983, *Martínez & Stevens 4597* (INB, MEXU); along road to Infernillo, 15 Jan 1983, *Miller* et al. 456 (MO [2 sheets]). **Oaxaca:** Mpio. San Miguel Chimalapa, Río Escondido (Arroyo Baúl), W of the union with Río Portamonedas and Benito Juárez, ca. 38 km in a straight line to the N of San Pedro Tapanatepec, 8 Oct 1985, *Maya 2336* (TEX). **Quintana Roo:** N de Estero Franco, 30 Jul 1984, *Cabrera & Cabrera 6885* (MEXU, MO). **GUATEMALA. Chiquimula:** between Ramírez and Cumbre de Chiquimula, 15 Oct 1940, *Standley 74562* (F). **HONDURAS. Comayagua:** Comayagua Valley, 11 Sep 1974, *Hazlett s.n.* (MO); Quebrada Chicuas, cerca de El Agua Salada, 21 Jul 1962, *Molina 10996* (EAP, F, NY). **NICARAGUA. Chontales:** near Cuapa, 14 Jul 1976, *Neill 619* (DUKE, MO); N of Cuapa, 3 Sep 1977, *Neill 2488* (MO); N of Cuapa, 21 Jan 1978, *Stevens 6106* (BM, MO), ca. 2.8 km about Cuapa city, 30 Dec 1983, *Stevens 22695* (DUKE, MO, NY). **Rivas:** Isla Omotepe, 27 Apr 1984, *Robleto 396* (MO); 1 May 1984, *Robleto 537* (MO), 14 Dec 1984, *Robleto 1611* (MO); Volcán Maderas, 21 Sep 1984, *Robleto 1218* (MO). **COSTA RICA. Alajuela:** road to Upala, Hacienda Carbonal, 2 Nov 1985, *Gómez et al. 23879* (CR, F, MO). **Guanacaste:** Finca Tenorio, Las Cañas, 18 Jul 1965, *Croat 268* (MO); La Pacifica, 26 Jan 1969, *Gentry 307* (MO); Finca La Pacífica, Cañas, 21 Sep 1975, *Janzen 10148* (MO); Río Tenorio, near La Pacífica, 20 Nov 1972, *Opler 1567* (COL, CR, F, MO, NY). **Puntarenas:** Monteverde Biological Reserve, 27 Aug 1993, *Bello & Cruz 5278* (CR, INB, MO). **San José:** Acosta, Valle del Río Candelaria, near Puente, 15 Apr 1995, *Hammel 19760* (INB, MO); Acosta, Río Candelaria, 19 Nov 1994, *Morales 3139* (CR, INB [2 sheets], MO), *Morales 3161* (INB, MO), Cerros de Caraigres, Río La Meza, Ceiba Este, *Morales & Corrales 6033* (INB, MO); Río Jorco, Acosta, between Bajo Badilla and Bajo Cárdenas, 22 Aug 1998, *Morales 6481* (INB, MO); Río Candelaria, W of Resbalón, 3 Dec 2001, *Morales & Quirós 8241* (CR, INB, MO); Acosta, between Monterrey and Las Ceibas, 1 Dec 2002, *Morales & Abarca 8810* (INB).

4. Allotoonia turbinata (Woodson) J.F. Morales & J.K. Williams, comb. nov. (**Figs. 13, 14**). BASIONYM: *Echites turbinata* Woodson, Ann. Missouri Bot. Gard. 21:615.

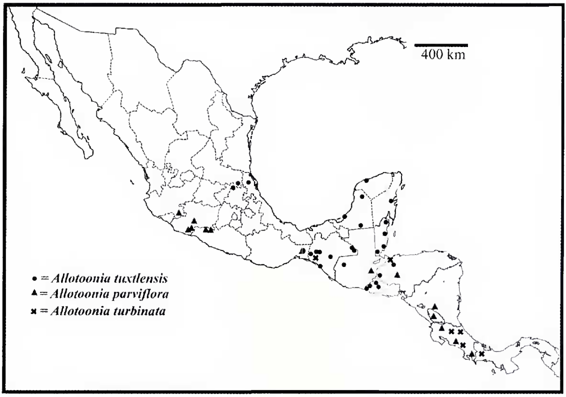

Fig. 13. Distribution of *A. parviflora*, *A. turbinata* and *A. tuxtlensis*.

1934. Type: COSTA RICA: Alajuela: Rancho Flores, 22 Feb 1890 (fl), *Tonduz 2147* (holotype: B [destroyed]; lectotype, here designated: US; isolectotypes: BR [2 sheets]).

Suffruticose liana, stem terete to subterete, glabrous. Leaves: petioles 7–21 mm long, without colleters in the axils, glabrous; blade 4.5–14.5(–17) × 2.1–8.7 cm, membranaceous, rarely subchartaceous, elliptic to narrowly elliptic, apex caudate-acuminate, rarely acuminate, base obtuse to cuneate, sometimes oblique, glabrous, midvein impressed on both surfaces, the secondary venation slightly impressed or inconspicuous. Inflorescence shorter than the subtending leaves, lax to somewhat agglomerate, peduncle 1.5–5.1(–5.4) cm, pedicels 4–15 mm, bracts 1–2.5 mm long, very narrowly elliptic to linear, acuminate, scarious; sepals 2–3.5 × 1–1.5 mm, ovate, long-acuminate, glabrous to glabrate, minutely rugose, the colleter irregularly fimbriate; corolla salverform, greenish yellow, glabrate to inconspicuously and sparsely puberulent without, tube 4–6 mm long, ca. 1.5 mm diam, inflated at the attachment of the stamens, puberulent to glabrate within around the stamens, lobes (17–)20–27 × 1 mm, glabrous to glabrate; stamens: filaments ca. 1 mm, glabrate, anthers 3–3.5 mm, glabrous, auricles 0.5–0.8 mm, ovary 1.5–2 mm, glabrate, style head 1–1.5 mm long, nectaries ca. 1.5 mm, entire. Follicles 20–31 × 0.4–0.6 cm, obscurely moniliform, smooth and glabrous; seeds 27–30 × 2–3 mm, rugose, the tannish coma 3–5.5 cm.

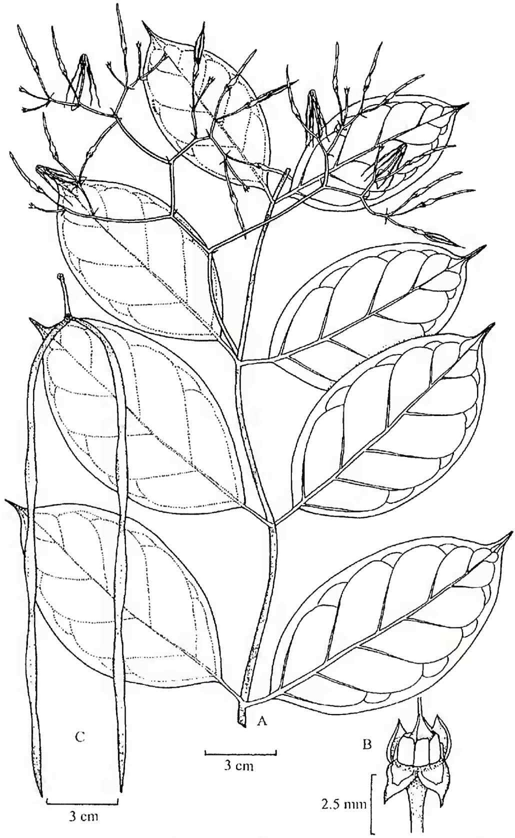

Fig. 14. *Allotoonia turbinata* (A–C from *Kupper 937*, M; D from *Gómez-L. et al., 12142*, INB). **A.** Flowering shoot. **B.** Sepals, colleters, nectaries, and ovary. **C.** Fruits.

Habitat and distribution.—Montane Rain forest and related disturbed areas in Mexico (Chiapas), Honduras, Costa Rica, and Panama, between 1500–2350 m. (Fig. 13). Associated species include *Clethra*, *Eugenia*, *Liquidamber*, *Pinus*, *Quercus*, and *Randia*.

Phenology.—Flowering specimens have been collected in January–May, June, and September. Fruiting collections are reported in January–February, and June.

Allotoonia turbinata is immediately distinguished by its corolla lobes 1.2–2.7 cm long. This species is similar to *A. parviflora* but differs in its corolla lobes which are longer and extended upwards in bud (vs. rounded in bud, Fig. 10).

The elevation range of this species (between 1500 m and 2350 m) is unique, considering that the other species in *Allotoonia* are found mostly at low elevations and the fact that in Mesoamerica very few apocynaceous lianas grow at 1500 m altitude. This species was originally considered endemic to Costa Rica (Rancho Flores, Cordillera Volcánica Central), but further collections have broadened of its known range.

Specimens examined. **MEXICO. Chiapas:** Mpio. Villa Corzo, E base of Cerro Tres Picos near Cerro Bola along a logging road SW of Colonia Agrónomos Mexicanos, 4 May 1972, *Breedlove 25058* (MO [2 sheets], TEX). **HONDURAS. Cortéz:** Montaña Idalfonso, N de Cofradía, 17 Apr 1957, *Molina 6203* (EAP, F). **COSTA RICA. Alajuela:** near Carrizal, 31 Jan 1992, *Gómez-L. et al. 12142* (INB, USJ); Poás, 27 Mar 1932, *Kupper 937* (M [2 sheets]). **Heredia:** Monte Barva, 1845–1848, *Oersted 15544* (C); Las Lajas de San Isidro, Sep 1900, *Pittier 14035* (US). **PANAMA. Chiriquí:** vicinity of Cerro Punta, 21 Jan 1939, *Allen 1524* (MO); Río Chiriquí Viejo Valley, between El Volcán and Cerro Punta, 15 Mar 1938, *White 6* (MO, US); vicinity of Casita Alta, Volcán de Chiriquí, 28 Jun 1938, *Woodson et al. 988* (GH, MO, NY).

5. Allotoonia tuxtlensis (Standl.) J.F. Morales & J.K. Williams, comb. nov. (**Figs. 14, 15**). BASIONYM: *Echites tuxtlensis* Standl., Contr. U.S. Natl. Herb. 23:1164. 1924. TYPE: MEXICO. CHIAPAS: near Tuxtla, 1 Sep 1895 (fl), *Nelson 3080* (HOLOTYPE: US).

Suffruticose liana, stems terete to subterete, glabrous. Leaves: petioles 3–11 mm long, with minute pectinate colleters in the axils, rarely eglandular, glabrous; blade 4.5–11 × 1.4–3.7(–4.8) cm, membranaceous, narrowly elliptic to narrowly ovate, apex acuminate, base obtuse to cuneate, midvein impressed on both surfaces, the secondary venation slightly impressed or inconspicuous. Inflorescence longer than the subtending leaves, lax, peduncle 2.6–8 cm, pedicels 8–19 mm, bracts 0.8–1.5 mm long, ovate, acuminate, scarious; sepals 1.5–1.8 × 1 mm, ovate, acuminate, glabrous, the colleter entire or somewhat laciniate; corolla salverform, yellow to creamish yellow, glabrous without, tube 8–10 mm long, 1.5–2 mm diam, inflated at the attachment of the stamens, puberulent within around the stamens, lobes 6–8 × 1–1.5 mm, glabrous; stamens: filaments inconspicuous, anthers ca. 4 mm, glabrous, auricles ca. 0.5 mm, ovary 1–1.5 mm, glabrous, style head 1.5–2 mm long, nectaries 0.5–1 mm, distinct to somewhat connate, entire. Follicles 13–15 × 0.3 cm, continuous, smooth and glabrous, sometimes somewhat twisted distally; seeds 11–13 × 1.5 mm, minutely and inconspicuously rugose, the creamish coma (2.3–)2.5–3.2 cm.

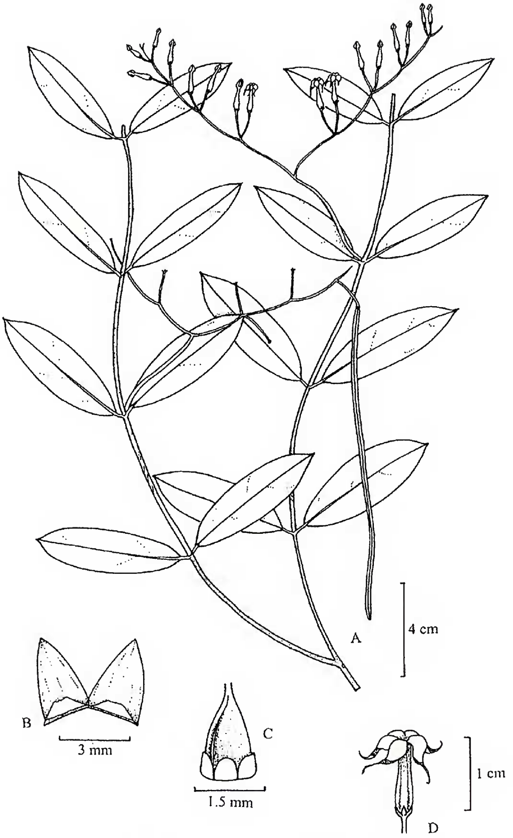

Fig. 15. *Allotoonia tuxtlensis* (A–C from *Arvigo et al. 536*, INB; D from *Renderos 378*, INB) **A.** Fertile shoot, showing the inflorescence and follicles. **B.** Sepals. **C.** Ovary and nectaries. **D.** Corolla.

Habitat and distribution.—Tropical deciduous forest and disturbed areas of Mexico (Chiapas, Campeche, Oaxaca, Quintana Roo, and Yucatán), Belize, Guatemala, Honduras, and disjunct into El Salvador, 100–1200 m. (Fig. 13). Associated species include *Aspidosperma*, *Bursera*, *Ficus*, *Pinus*, *Quercus*, and *Spondias*. This species is occasionally cultivated and it is suspected that the populations in Northern Mexico (San Luis Potosí, Querétaro, and Veracruz) are introduced rather than native.

Phenology.—Flowering all the year. Fruiting collections have been made in January and May.

Local names.—Tasnk'ub ts'aah (México, Huasteca); centipede vine (Mexico); bejuco lengua de culebra (El Salvador, Ahuacapán, San Benito); loroco de Culebra (El Salvador, Cuscatlán). The name Loroco is used for others Apocynaceous lianas in northern Mesoamerica [e.g., *Fernaldia pandurata* (A. DC.) Woodson].

Allotoonia tuxtlensis is readily distinguished from the other species of *Allotoonia* by its contorted and pointed corolla buds (Fig. 10) and its corolla lobes shorter than the tube. In both these respects, *A. tuxtlensis* resembles *A. agglutinata*. The main differences between the two taxa is the conspicuous secondary veins in the leaves of *A. agglutinata* and its restriction to the West Indies. At present no specimens with visible secondary veins in the Mexican and Central American collections of *A. tuxtlensis* have been observed.

This species was considered to be restricted to the Caribbean slopes in northern Mesoamerica (Morales 1997), but it was recently collected in the Cuscatlán Department, El Salvador Alcorn (1984) reported that this species is cultivated and protected in San Luis Potosí, Mexico. She reports that the leaves are used as a medicine in the cure of respiratory problems, including wheezing and difficulty in breathing. The leaves are boiled in a tea and drunk.

Specimens examined. **MEXICO. Campeche:** Calakmul, road to Dos Caminos, 14 Oct 1997, *Alvarez 401* (MEXU, MO); Santa María Xacabacab, 7 Mar 1982, *Cabrera et al. 2062* (INB, MEXU); Champotón, road to Escárcega, 23 Oct 1997, *Carnevali & May 4628* (CICY, MO); Calakmul, road Xpujil-Campeche road, 22 Nov 1997, *Lira et. al. 360*^{a} (MEXU, MO); Calakmul, 24 Nov 1997, *Martínez et. al. 29893* (MEXU, MO); Hopelchén, SE of Xpujil, 23 Jan 1996, *Pascual 150* (MO). **Chiapas:** between Piñola (Las Rosas) and Soyatitán, 27 Aug 1981, *Breedlove 52441* (MO [2 sheets]); Cintalapa, 14 Sep 1981, *Breedlove 52710* (MO); Ococingo, Río Usumacinta, 4 Dec 1984, *Martínez 8987* (INB, MEXU); Cerro Brujo, Ocozocuautla, 25 Oct 1985, *Martínez 14303* (MEXU, MO); NW of Boca Lacantum, 31 Oct 1985, *Martínez 14468* (MEXU, MO); Ococingo, road to Palenque, 4 Nov 1985, *Martínez 14883* (MEXU, MO); Ococingo, 10 Jan 1986, *Martínez 16205* (MEXU, MO); Ocosingo, road to Chapul, S of Boca Lacantum, 18 Apr 1986, *Martínez 18362* (MEXU, MO); Comitán, road to Tzimol, 20 Sep 1988, *Martínez & Stevens 23940* (INB, MEXU, MO); Tonala, Sep 1913, *Purpus 6825* (BM, GH); La Cueva, Tenejapa, 21 Feb 1984, *Shilom 7306* (INB, MEXU); E of Cintalapa, 19 Nov 1984, *Téllez et al. 8126* (INB, MEXU). **Oaxaca:** Santa María Chimalapa, Paso La Cueva, Río Corte, 9 Oct 1984, *Hernández 488* (MEXU, MO, TEX). **Querétaro:** Mpio. Lanad de Matamoros, W of Tilaco, road to Santa Ines, 6 Aug 1985, *Fernández 3121* (IEB). **Quintana Roo:** N of Estero Franco, road to Tomás Garrido, 30 Jul 1984, *Cabrera & Cabrera 6885* (MEXU, MO). **San Luis Potosí:** Mpio. San Antonio, San Pedro, 26 Oct 1978, *Alcorn 2102* (TEX). **Veracruz:** Mpio. Chicontepec, in the town of Tlacolula, 26 Feb 1980, *Calzada 5866* (F). **Yucatán:** Progreso, 1932, *Flores s.n.* (F). **GUATEMALA. Huehuetenango:** between Democracia and Santa Ana, Sierra de los Cuchumatanes, 25 Aug 1942, *Steyermark 51307* (F, MO). **HONDURAS. Morazán:** along Jicarito creek, 13 Aug 1947, *Molina 485* (EAP, F). **Ocotepeque:** road to Esquipulas, 29 Aug 1968, *Molina 22423* (F, NY). **BELIZE. Belize:** Belize Camp, 15 May 1991, *Arvigo* et al. *536* (INB, NY); Savanna, 2 Jun 1974, *Dwyer 12613* (MO). **Corazal:** High Ridge, 1931-1932, *Gentle 439* (BM, MO); Northern River, Dec 1933, *Gentle 1022* (MO, NY). **Toledo:** Columbia road, Dec 1946, *Gentle 6116* (F, MO, NY, TEX). **EL SALVADOR. Ahuachapán:** around Finca Santa Lina, S of Ahuachapán, 5 Dec 994, *Linares & Martínez 1953* (MO); San Francisco Menéndez, El Corozo, 13 Apr 2000, *Rosales 544* (B, LAGU, MO), 11 May 2000, *Rosales 702* (LAGU, MO), 19 Aug 2000, *Rosales 785* (LAGU, MO); San Benito, 15 Jun 1995, *Sandoval & Sandoval 27* (LAGU, MO). **Cuscatlán:** artificial lake near Cerrón Grande, 9 Dec 1997, *Renderos 378* (B, BM, BONN, INB, LAGU, MO). **Santa Ana:** S of Metapán, San Diego mountain, May 1995, *Linares & Martínez 2728* (MO).

APPENDIX 1: NUMERICAL LIST OF ACCEPTED TAXA

Allotoonia agglutinata (Jacq.) J.F. Morales & J.K. Williams
Allotoonia caudata (Woodson) J.F. Morales
Allotoonia parviflora (Sessé & Moc.) J.F. Morales & J.K. Williams
Allotoonia turbinata (Woodson) J.F. Morales & J.K. Williams
Allotoonia tuxtlensis (Standl.) J.F. Morales & J.K. Williams

APPENDIX 2: INDEX TO NAMES IN SYSTEMATIC TREATMENT

Allotoonia
agglutinata (Jacq.) J.F. Morales & J.K. Williams
caudata (Woodson) J.F. Morales
parviflora (Sessé & Moc.) J.F. Morales & J.K. Williams
turbinata (Woodson) J.F. Morales & J.K. Williams
tuxtlensis (Standl.) J.F. Morales & J.K. Williams
Anechites
agglutinata (Jacq.) Miers (= A. agglutinata)
circinalis (Sw.) Miers (= A. agglutinata)
circinalis Sw. var. *thomasiana* A. DC. (= A. agglutinata)
thomasiana (A. DC.) Miers
Echites
agglutinata Jacq. (= A. agglutinata)
circinalis Sw. (= A. agglutinata)
obtusifolia Sessé & Moç. (= A. agglutinata)
puntarenensis J.F. Morales (= A. caudata)
sanguinolenta Tussac (= A. agglutinata)
turbinata Woodson (= A. turbinata)
tuxtlensis Standl. (= A. tuxtlensis)
woodsoniana Monac. (= A. parviflora)
Haemadictyon
circinalis (Sw.) G. Don (= A. agglutinata)
nutans (Anders.) A. DC. var. *sanguinolenta* (Tussac) (= A. agglutinata)
Prestonia
agglutinata (Jacq.) Woodson (= A. agglutinata)
caudata Woodson (= A. caudata)
woodsoniana (Monac.) A.H. Gentry (= A. parviflora)

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ACKNOWLEDGMENTS

We wish to thank the curators of A, B, BM, BR, BRIT, C, CAS, CGE, CICY, CIIDIR, CIMI, CM, COL, CR, DUKE, EAP, ENCB, F, FI, FI-W, G, GH, HAL, HBG, HUA, IEB, JAUM, JEPS, K, LAGU, LD, LE, M, MA, MEDEL, MEXU, MICH, MO, NY, O, P, PMA, TRIN, TEX, U, UC, UPS, US, USF, USJ, UVAL, W, WAG, WIS, XAL for providing specimens for examination. The senior author thanks Jorge León, for giving access to original references in his personal library. The second author thanks Mary Endress and the researches at the Plant Resources Center at the University of Texas in Austin. This research was financed in part by the Netherlands Development Agency (NEDA) through the project Development of Biodiversity Knowledge and Sustainable Use in Costa Rica conducted by the National Biodiversity Institute of Costa Rica (INBio). This research was also possible thanks to the Cooperation Agreement between the Ministry of Environment

and Energy (MINAE) and INBio in order to accomplish the National Biodiversity Inventory.

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